N° 14,955 A.D. 1893

Date of Application, 4th Aug., 1893
Complete Specification Left, 4th May, 1894—Accepted, 9th June, 1894

PROVISIONAL SPECIFICATION.

Improvements in or connected with Boots and Shoes.

I, FREDERICK ROBINSON, of Trent Works, Burton-on-Trent, in the County of Stafford, Engineer, do hereby declare the nature of this invention to be as follows :—

This invention has reference more particularly to those boots and shoes which are worn by athletes or by persons playing tennis, cricket and other out-door games but my invention is also applicable to boots and shoes generally.

My invention consists in the application of inflated or pneumatic india rubber or like flexible tubes to the soles and heels of boots and shoes so as to form an elastic tread, the said tubes being either detachable from the said soles and heels or not detachable and provided with a valve by which the tubes can be inflated or deflated at will.

The said pneumatic or inflated tubes may be arranged and connected to the said soles and heels in various ways for instance the sole of the boot or shoe may have an undercut groove or projecting ribs running round the under side of the same in an oblong or other suitable form and in this groove or between these ribs fits the pneumatic tube which may be like the endless inner india rubber or like air tube and the outer covering of a pneumatic tyre for wheels. There is a similar groove or ribs running round the underside of the heel and a similar pneumatic tube fitting therein. The sole tube and the heel tube are connected together by a small tube under the instep and in this small tube is the valve and connection for the pump when inflating the tubes so that both tubes are inflated together. Or the sole and heel tubes may be quite separate and distinct with separate valve to each or the same pneumatic tube may be arranged round both the sole and heel of the boot or shoe.

Or the sole and heel may be made as usual and the pneumatic tube or tubes be arranged to fit in a light metal or other plate or frame or plates or frames the edges of which are turned outwardly and inwardly so as to form the necessary undercut section to hold the pneumatic tube or tubes in place.

When made in this way the said metallic plate or frame or plates or frames can readily be removed from and replaced on the soles and heels of the boots or shoes thus enabling the boots or shoes to be changed from ordinary to pneumatic or from pneumatic to ordinary at will.

Or the pneumatic tube or tubes may be cemented or otherwise fixed to the sole and heel of the boots and shoes.

By "pneumatic tube" I mean any kind of india rubber or like flexible air tube whether made with a separate outer covering portion or not so made.

Dated this 2nd day of August 1893.

CHARLES BOSWORTH KETLEY,
Agent for the Applicant.

[Price 8d.]

COMPLETE SPECIFICATION.

Improvements in or connected with Boots and Shoes.

I, FREDERICK ROBINSON, of Trent Works, Burton-on-Trent, in the County of Stafford, Engineer, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement :—

My invention has reference more particularly to those boots and shoes which are worn by athletes or by persons playing tennis, cricket and other out-door games but my invention is also applicable to boots and shoes generally.

My invention consists in the application of inflated or pneumatic india rubber or like flexible tubes to the soles and heels of boots and shoes so as to form an elastic tread, the said tubes being either detachable from the said soles and heel or not detachable and provided with a valve by which the tubes can be inflated or deflated at will.

The said pneumatic or inflated tubes may be arranged and connected to the said soles and heels in various ways for instance the sole of the boot or shoe may have an undercut groove or projecting ribs running round the under side of the same in an oblong or other suitable form and in this groove or between these ribs fits the pneumatic tube which may be like the endless inner india rubber or like air tube and the outer covering of a pneumatic tyre for wheels. There is a similar groove or ribs running round the underside of the heel and a similar pneumatic tube fitting therein. The sole tube and the heel tube are connected together by a small tube under the instep and in this small tube is the valve and connection for the pump when inflating the tubes so that both tubes are inflated together. Or the sole and heel may be quite separate and distinct with separate valve to each.

Or the sole and heel may be made as usual and the pneumatic tube or tubes be arranged to fit in a light metal or other plate or frame or plates or frames the edges of which are turned outwardly and inwardly so as to form the necessary undercut section to hold the pneumatic tube or tubes in place.

When made in this way the said metallic plate or frame or plates or frames can readily be removed from and replaced on the soles and heels of the boots or shoes thus enabling the boots or shoes to be changed from ordinary to pneumatic or from pneumatic to ordinary at will.

Or the pneumatic tube or tubes may be cemented or otherwise fixed to the sole and heel of the boots and shoes.

In order that my invention may be well understood I will now proceed to particularly describe the same by referring to the accompanying drawings on which

Fig. 1 is a longitudinal sectional elevation of a shoe with inflated or pneumatic india rubber or like flexible tubes applied to the sole and heel of the same;

Fig. 2 is an inverted plan of the same with portions of the pneumatic tubes removed so as the better to shew the fixing plates or frames of the same;

Fig. 3 represents in sectional elevation and in inverted plan the metal plate separately which secures the pneumatic tube to the heel of the said shoe;

Fig. 4 is a longitudinal sectional elevation of a portion of a shoe with the pneumatic tubes fixed to the sole of the same according to a modification of this invention and

Fig. 5 is an inverted plan of the heel portion of the shoe shewn by Fig. 4 being cut away to shew part of the indiarubber pneumatic tube being represented as broken away to more clearly shew the groove in the heel of the shoe in which the said tube fits;

Fig. 6 is a longitudinal sectional elevation of a portion of a shoe pneumatic tubes fixed to the sole of the same in a slightly different manner shewn by the preceding figs, and

Fig. 7 is an inverted plan of the heel portion of the shoe shewn by Fig. 6 and with a portion of the pneumatic tube removed so as to shew the fixing plate.

The same letters of reference indicate the same or corresponding parts in all the figures of the drawings.

I will first describe my invention as illustrated by Figs. 1, 2 and 3. A is the sole of the shoe made of india rubber leather or other suitable substance. B^1 is the endless inner india rubber or like air tube of the sole portion of the shoe and B^2 is its outer covering of india rubber or canvas insertion like the inner air tube and outer covering of a pneumatic tyre for wheels. This outer covering B^2 is made to surround or almost surround the inner air tube B^1 and is made with two beads, marked respectively b^1 b^2, one along each edge which fit in the undercut recess c^1 of the thin metal plate or frame C which is by preference made of aluminium or some other light and thin sheet metal and fixed to the sole A by screws such as those shewn and marked d. It will be seen that the edges c^2 c^3 are raised and turned towards each other so as to form the necessary undercut section under which the beaded edges b^1 b^2 of the outer covering portion B^2 fit so as to be firmly secured when the inner air tube B^1 is inflated. E^1 is the endless inner india rubber or like air tube of the heel portion F of the shoe and E^2 is the india rubber and canvas insertion outer covering of the same; G is the thin metal plate or frame which is pierced with a central hole g^1 and the edges g^2 g^3 of the plate G are turned inwardly so as to form the necessary undercut section for the beaded edges e^1 e^2 of the outer covering E^2 to take under so as to be secured thereto when the inner air tube E^1 is inflated. The plate or frame G is secured to the heel as by screws d as shewn. It will be seen that the plate or frame G with its air tube E^1 and outer covering portion E^2 is (except as to shape) similar to the plate or frame C with its inner air tube B^1 and outer covering portion B^2. Formed with the inner air tube B^1 there is a short tube b^3 which passes through a hole in the outer covering portion B^2 and is connected to one branch of the valve H, to the other branch of which a small india rubber air tube e^3 formed with the inner air tube E^1 is fixed. This valve H may be similar in construction to those used for pneumatic tyres for connecting to the pump to inflate the air tube so that by means of this valve both air tubes E^1 B^1 are inflated simultaneously.

When it is desired to remove the metal plates or frames C and G with the air tubes from the shoe the air tubes B^1 E^1 have first to be deflated by allowing the air to escape through the valve H and then the air tubes with their outer coverings B^2 E^2 will be free to be removed from the plates C and G and the latter be removed from the sole A and heel F by taking out the screws d. In the way the plates and air tubes can be refixed on the shoe by first fixing the plates C and G by screws d and then placing the air tubes B^1 E^1 within their respective outer covering portions B^2 E^2 and then placing the outer covering portions in position on the plates so that the beaded edges of the outer covering portions engage under the edges of the plates as shewn; then when the air tubes B^1 E^1 are inflated the shoe will be ready for use.

I prefer to employ one valve H which is common to both air tubes B^1 E^1 but it is evident that if desired a separate valve may be used for each air tube instead of the valve H which is common to both.

In the modification of my invention shewn by Figs. 4 and 5 the plates or frames C and G are dispensed with and instead thereof the underside of the sole A of the shoe is moulded or otherwise made with an undercut groove a^1 ... sole and of similar shape to the groove c^1 in the plate C and in ... e a^1 fit the beaded edges b^1 b^2 of the outer covering B^2 of the ... ; and there is a similar groove f^1 running round the underside ... ween the ribs f^2 f^3 for the beaded edges e^1 e^2 of the outer ... under as shewn so that the air tubes B^1 E^1 and their outer ... be secured to the sole A and heel F when the inner air tubes ... described with reference to Figs. 1, 2 and 3

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In the modification of my invention shewn by Fig coverings B^2 E^2 are each made with flanges as shewn, th covering B^2 is made with two flanges marked respectively flat against the underside of the sole by the two plates I conform with the shape of the sole and are fixed thereto by Similarly the outer covering E^2 of the heel tube E^1 is m which are fixed flat against the underside of the heel by the plates J^1 J^2, screws *d* passing through these plates at inter flanges e^4 e^6 and thus securing the air tube E^1 and its oute underside of the heel.

Having now particularly described and ascertained the natu tion and in what manner the same is to be performed I wish that I am aware that prior to my said invention the soles of b been constructed so as to be inflated with air and therefore I exclusive right of so constructing the said soles and heels bu claim is:—

1. The application round the under of inflatable india rubber or like and heels of boots and shoes or between soles so as to form an elastic tubes being constructed and fixed india rubber or ... to the said the accompanying substantially as hereinbefore described and ... drawings.

2. For boots and shoes the india rubber or other like flexible outer coverings B^2 of the air tubes made with beaded edges adapted to engage in the under recesses in the plates or in the sole and heel of the boots or shoes so as to secured thereto by the inflating of the inner air tube substantially as hereinbefore set forth.

3. For boots and shoes the india rubber or other like flexible outer coverings B^2 of the air tubes made with flanges adapted to be fixed against the sole and heel the boots or shoes by metal plates substantially as hereinbefore described by Figs. 6 and 7 of the accompanying drawings.

4. In boots and shoes making the india rubber or like soles and heels with undercut grooves such as a^1 f^1 for the beaded edges of the outer coverings of the inner air tubes to engage with substantially as hereinbefore described and illustrated by Figs. 4 and 5 of the accompanying drawings.

5. For securing the india rubber or other like flexible outer coverings and inner air tubes to the soles and heels of boots and shoes the thin sheet metal plates C and G made with their edges turned upwardly and inwardly so as to form undercut grooves for the beaded edges of the flexible outer coverings to engage with in the manner substantially as hereinbefore described and shewn.

6. For boots and shoes, the combination of the metal plate C made with undercut groove, the outer covering B^2 made with beaded edges engaging the undercut groove, and the inner air tube B^1 contained between the covering B^2 and the plate C the whole adapted for fixing to the sole of a boot shoe so as to form an elastic tread substantially as hereinbefore set forth.

7. For boots and shoes, the combination of the metal plate G made with un groove, the outer covering E^2 made with beaded edges engaging with the u grooves, and the inner air tube E^1 contained between the outer covering the plate G the whole adapted for fixing to the heel of a boot or shoe form an elastic tread substantially as hereinbefore set forth.

Dated this 3rd day of May 1894.

CHARLES BOSWORTH KETL

Agent for the Applicant.

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Improvements in

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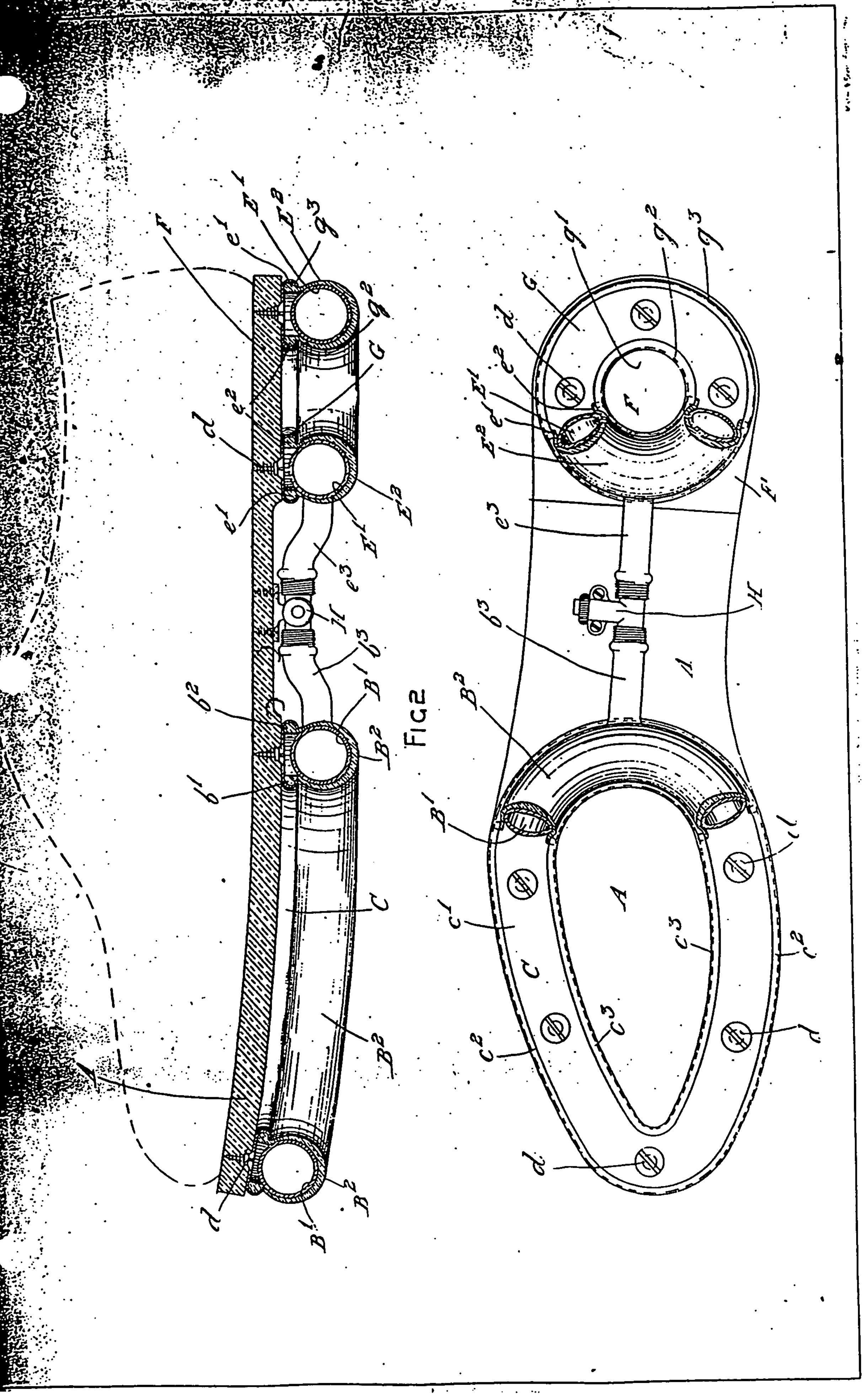

Fig 2